completed. I have seen the First and Second parts, which were printed at Petersburgh, in 1786, and 1789. Neither the African nor American languages have any place in these volumes. My own labours have now put me in possession of good specimens of at least one hundred American dialects, and several African ones. These may, at some future period, be offered to the public, as a supplement to the work begun by Catherine and Pallas.

No. XXIX.

Astronomical Observations made by Jose Joaquin de Ferrer, chiefly for the Purpose of determining the Geographical Position of various Places in the United States, and other Parts of North America. Communicated by the Author.

Translated from the Spanish, and read at different times.

GEOGRAPHICAL POSITIONS
ON THE ATLANTIC BORDER OF THE UNITED STATES.

	Latitudes.			Longitudes W. of Greenwich.		
	o	/	//	o	/	//
Cape Hatteras. . . . . †	35	14	30	75	38	15 §
Cape Henlopen light-house. . . . . ‡	38	47	16	75	10	03 §
Cape May. . . . . · . . . . †	38	56	46	74	56	54 §
Germantown market-house. . . . . *	40	02	29			
Coast to the North of Cape-May. . . . . ‡	39	39	00	74	16	35 §
Idem. . . . . ‡	39	52	40	74	12	15 §
Idem. . . . . · . . . ‡	40	07	30	74	12	15 §
Highlands.				74	07	24 §
Town of New-Haven. . . . . ‡	41	17	07	73	4	53 §
Town of Gilford. †	41	18	16	72	51	00 §
(Falcon) Falkland-Island. . . . . ‡	41	14	50	72	50	15 §
New-London, Light-house. . . . . ‡	41	21	08	72	12	15 §
Light-house, on the Easternmost point of Long-Island. . †	41	04	30	71	53	39 §
E. Hampton, in Long-Island. . . . . †	41	00	00	72	15	50 §
Rocky Way in Idem. . . . . †	40	28	00	73	12	55 §
Battery at New-York. . . . . *	40	42	06	74	07	45

† Latitude observed at sea, at some distance from the parallel, and calculated from a course of 4 or 5 hours from the time of observing.
‡ Latitude observed at sea, upon which dependence may be placed, and not differing ⅓ of a minute from the true lat.
* Longitude determined by astronomical observations; by the emersions of the first satellite of Jupiter compared with the corresponding ones made in Europe, and by the occultation of stars by the moon's disk.
§ Longitude as referred to New-York, by a chronometer of Arnold.

ON THE RIVERS OHIO AND MISSISSIPPI.

THESE Latitudes, which were ascertained in the months of May and June 1801, were observed with a circle of reflection, and an artificial horizon of Mercury; and the Longitudes by the assistance of two chronometers; one made by Arnold No. 396, the other by Earnshaw No. 306 suspended in gimbols. Their going was carefully observed at Pittsburgh and at New-Orleans, and from the regularity observed in their going, reliance is to be placed on the exactness of the difference of meridians.

ON THE OHIO.

	Latitude.			Long. (in time) W. of Greenwich.		
	o	′	″	h	′	″
Pittsburgh.	40	26	15	5	19	53
Great Kanhawa.	38	51	54	5	28	32
Galiopolis.	38	49	12	5	28	41
Guiandot.	38	25	00	5	29	16
Sciota River.	38	43	28	5	31	54
Vance Ville.	38	35	00	5	33	00
Manchester.	38	37	00	5	34	05
Cincinnati (Fort Washington).	39	05	54	5	37	50
Louisville.	38	15	48	5	42	39
Falls of Louisville, (2 m. N. W. of L.).	37	17	14			
Blue River.	38	11	00	5	44	53
Green River.	37	52	42	5	49	42
Diamond Island.	38	14	16	5	49	28
Wabash River.	37	49	15	5	52	02
Fort Massac.	37	13	00	5	54	31
Wilkinson Ville.	37	15	00	5	55	40
Confluence of the Rivers Ohio and Mississippi.	37	00	20	5	56	24

ON THE MISSISSIPPI.

	o	′	″	h	′	″
Sand Island (arena).	36	27	28	5	57	40
New-Madrid.	36	34	30	5	58	03
East point of Devil's Island, with a Cliff on the East bank of the River.	35	24	24	5	59	54
Channel between two Islands.	33	58	00	6	4	35
Island.	33	04	30	6	4	57
Island.	32	36	22	6	4	14
Confluence of the Rivers Yazoo and Mississippi.	32	28	00	6	4	12
Walnut Hills.	32	24	37	6	3	49
Grand Goufre.	32	04	30	6	4	27
Natchez.	31	33	48	6	5	54
Spanish Limits.	31	00	00	6	6	43
Red River.	31	01	15	6	7	11
Point Coupee (1st Church)	30	45	00	6	5	56
False River.	30	42	00	6	5	32
The Yellow Cliffs (escapardo)	30	40	00	6	5	24
Northern point of the last Island.	30	36	00	5	6	23
New Orleans.	29	57	30	6	0	38
South West Pass.	28	56	00	5	57	56

Occultation of o *in Sagittarius, by the disk of the Moon, observed by J. J. de Ferrer, in Veracruz, August 25, 1795, with an achromatic Telescope of Dolland* 2½ *feet long.*

	h ' "		h ' "
Immersion in apparent time, 9 32 55, and in mean time.			9 34 31. 4
Veracruz west of Paris.			6 33 42. 8
Immersion in mean time at Paris.			16 8 14. 2
			o ' "
Right ascension of the sun at the time.			.154 46 10
o Sagittarius {Right ascension.			.283 6 21. 2
{S. declination.			22 1 18
Apparent obliquity of the ecliptic.			23 27 51
o Sagittarius {Longitude.			.282 08 9. 5
{S. latitude.			0 53 28. 5
Proportion of equatorial and polar diameters of the earth...334: 333			
	o ' " ' "		
Correct latitude of Veracruz.	⌐ [19 11 53—6 23]		19 5 30
Logarithmic radius at Veracruz.			9,999 859
Equatorial horizontal parallax of the ☾.			55 50. 2
	"		
Apparent diameter of the ☾ —3 inflection.			30 47. 8
Parallax in longitude.			16 56. 5
Parallax in latitude.			34 38. 2
S. latitude of the moon by the theory of Laplace.			1 30 13. 6

On the 25th & 26th August, the moon was observed in the Royal observatory of Greenwich, and comparing these observations with the theory of Laplace, there results the following error in the theory.

On the 25th, in long: $= \times$ 0. 8   in lat. $= \times$ 6. 5
——— 26th   — 1. 6 $\times$ 7. 9

It results from these elements, that the true latitude of the moon at the moment of immersion was.			1 30 20. 5
Difference of the apparent latitudes between the ☾ & o Sagit.			2 13. 8
True conjunction in Paris according to the Greenwich observations in			h ' "
mean time.			16 4 58. 9
Conjunction at Veracruz, by the immersion.			9 31 16. 1
Longitude of Veracruz, W. of Paris.			6 33 42. 8

There was no corresponding observation made in Europe, but as on that and the following day, the transit of the moon over the meridian was observed in the Royal observatory at Greenwich, I was enabled to correct the error in the lunar tables, and found the longitude of Veracruz to be (as above) 6ʰ 33' 42". 8 west of Paris. Citizen Mechàin made the longitude, from the same observations, 6ʰ 33' 54". 9. This difference, although very small, might happen, if he was unacquainted with a remark published by the Rev. Nevil Maskelyne: That the transits of the stars were observed by his assistant D. K. and that of the moon by Maskelyne himself, who after

comparing the different observations, ascertained that his assistant had contracted the erroneous habit of marking down the transits, half a second after they had happened, from which it became necessary to subtract 0″. 5 of time, from the transits of the stars. If I had omitted this correction, my result would have been similar to that of Citizen Mechàin.

The present observation has this advantage, that the star passed but 2′, 13″ from the apparent centre of the moon, so that if there had been an uncertainty of 10″ in difference of latitude, there could only be one of 3″ in the difference of meridians.

Observations of the Eclipse of the Sun on the 21st February 1803, *made in the City of Havanna and at Lancaster in Pennsylvania, U. S.*

IN *the Havanna* the beginning of the eclipse could not be observed on account of the clouds; at 4ʰ. 18′. 30″. when the solar disk became clear, the indenture (cuerda) was perceptible. The distance of the horns, was observed alternately, with an excellent Heliometer of Dolland, by Don Antonio de Robredo, and by Don Jose Joaquin de Ferrer.

Apparent times.			Distance of the Horns.	
h	′	″	′	″
4	24	47	15	25
4	26	41	17	06
4	29	12	18	59. 2

Least distance of the Limbs.

h	′	″		″
5	16	45		0 53. 2

		o	′	″
Latitude of the Havanna by Ferrer.		23	09	07

		h	′	″
Longitude W. of Greenwich by the same.		5	29	16

Beginning of the eclipse *in Lancaster*, as observed by Mr. A. Ellicott.

	h	′	″
Apparent time =	4	50	57

	o	′	″	
Latitude of Lancaster.	40	02	39	} by Mr. Ellicott.
Longitude W. of Greenwich.	5ʰ	05	03	

Elements calculated by the theory of Laplace, at. 9 25 mean time in Paris.

Z

	s	o	／	″
Longitude of the ☾ reckoned from the apparent Equinox. .	11	2	19	24. 2
South Latitude of the ☾				30. 5
Horizontal parallax in Paris.			61	03. 2
Horizontal semi-diameter of the ☾			16	41. 5
Relative Horary motion. . . = (37 46 7—2 30 9 =)			35	15. 8
Horary motion in Latitude northerly. . . . . . ·. .			3	29. 4
Longitude of the ☉ by the tables of Lalambre.	11	02	20	47. 6
Horizontal semi-diameter of the ☉			16	11. 4
Horizontal parallax of the ☉				8. 6
Difference of Polar & Equatorial Diameters 1-334th.				

	h	／.	″
Conjunction in Paris by the tables, in mean time,	9	27	22
in apparent time	9	13	21

	″		
Vertical Angles. ⎰at Lancaster. = —	10	09	
⎱at Havanna.	7	26	

From these elements are derived the following results.

	h	／	″
Conjunction at Lancaster, apparent time. . . .	3	59	45
at the Havanna.	3	35	08
Lancaster East of the Havanna. . -	0	24	37
Havanna west of Greenwich.	5	29	16
Longitude of Lancaster west of Greenwich. . .	5	04	39

If we suppose the eclipse to have commenced at Lancaster
12″ earlier, which Mr. Ellicott suspected, in this case the dif-
ference of meridians between the Havanna and Lancaster will
be 24′. 25″. and it would result that Lancaster was west of
Greenwich 5ʰ. 04′. 51,″; differing from my result only 12″,
which is as near as can be expected; for as this determination
depends upon the exactness of the theory of the moon, it can-
not be relied on within 30″ of time.

These observations may be very important to compare with
others of the same eclipse, which may have been made in
other observatories.

GEOGRAPHICAL POSITIONS.

Without the boundary of the United States.

COAST OF CARACAS.

	Latitude North.			Long. W. of Greenwich.		
	o	′	″	o	′	″
La Guaira (wharf)*.	10	36	40	67	00	08
Caracas (town-house). . . . . ·. .	10	30	24	66	57	18
C. Codera.	10	35	36	66	01	44
New-Barcelona (Market-Place).	10	08	14	64	46	23
I. Blanca (S. W. point).	11	51	00	64	40	22

WINDWARD ISLANDS.

	Latitude North.			Long. W. of Greenwich.		
	o	'	"	o	'	"
Saba, highest part.				63	18	36
St. Martins, highest part	18	04	28	63	06	27
Isle of Dogs, the westermost.	18	19	00	63	22	15
St. Thomas the port.	18	20	30	64	57	06
Sta. Cruz, (the capital).	17	44	08	64	42	29

ISLAND OF PORTO-RICO.

	o	'	"	o	'	"
City of St. John, the capital,*.	18	29	10	66	07	48
N. W. point of the island. ."	18	31	18	67	06	10
Watering place of St. Carlos (town).	18	27	20	67	07	22
Little I. Desecheo.	18	23	48	67	27	48

ISLAND OF ST. DOMINGO.

	o	'	"	o	'	"
C. Samana.	19	16	30	69	08	34
Altavela, rock.	17	28	11			
Navaza I. middle. . . . . , . .	18	24	47			

ISLAND OF CUBA.

	o	'	"	o	'	"
C. de Cruz.	19	47	16	77	44	00 ☾
Pico de Tarquino.	19	52	57	76	51	30 ☾
C. Bueno.	20	06	10	74	10	45
C. Mayzi.				74	07	15
Punta de Mulas.	21	04	35	75	33	45
Cayo (Key) Verde. '	22	05	06	77	36	45
————— Confites.	22	11	44	77	41	08
————— de Lobos.	22	24	50	77	32	58
————— Guiancho.	22	44	00	78	01	15
Cayo Sta. Maria (the northermost).	23	12	00	78	53	03
Matanzas (city).	23	02	28	81	36	05
Castle St. Severino.	23	02	54	81	35	15
Punta Savanilla.	23	04	30	81	33	15
Punta de Guanos.	23	09	27	81	40	00
Pan de Matanzas.	23	01	39	81	41	41
Moro Castle, Havanna*.	23	09	07	82	19	10
Hill (Cerro) of Guaijabon.	22	47	46	83	21	06

BAHAMA CANAL.

		o	'	"	o	'	"
Cayo Largo. {	N. E. point.	24	57	30	80	35	26
	S. E. point.	24	52	00	80	33	36
Coast of Florida.		27	10	00	80	05	45
Double headed Shot, N. W. point. (los roques)		23	59	44	80	23	30
In 10 fathom water on the bank.		24	38	15	79	07	15
The Northermost of fresh water key.		25	43	30	79	08	21
Great Isaac.		26	01	30	79	02	21
Little Isaac (eastermost).		25	57	00	78	46	15
Memory Rock.		26	56	00	79	03	27

BAHAMA ISLANDS.

	Latitude North.			Long. W. of Greenwich.		
	°	′	″	°	′	″
I. Abacou, N. E. point.	26	29	52	77	00	21
Rocky point in the same.	26	17	20	77	03	25
Hole in the Wall (or Rock)	25	50	19	77	15	45
New Providence (Nassau).	25	04	33	77	22	06
The Northwestermost of the I. of Berry. . . .	25	50	49	78	01	38
The Eastermost. Idem.	25	22	00	77	41	15
9 fathom water, white sand.	25	44	00	78	14	45
2¾ do.	25	44	00	78	39	45
3 do.	24	53	00	78	51	45
4 do.	24	45	00	78	58	45
10 do.	24	38	00	79	07	15

GULF OF MEXICO.

	°	′	″	°	′	″
Campeche (great Square).	19	50	15	90	30	37
New Veracruz.*	19	11	52	96	04	20
Mount Orizaba (pico)	19	02	17	97	09	20
Bernal Grande.	19	39	42	96	21	05
Gallega Bay, the north part.	19	13	20	96	03	42
Tamiagua (city).	21	15	48			
Barra of New Santander.	23	45	18	98	07	43
Lake of St. Fernando (ó la Carbovera). . . .	24	36	00	97	59	00
Opening, supposed Rio Bravo	25	55	00	97	26	30
Point in the coast.	26	46	00	97	35	00

NOTES.—* Longitude determined by observation.

☾, Longitude determined by lunar distances.

The remainder of the Longitudes are ascertained by chronometers.

The correctness of Latitudes may be fully depended upon.

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Height of some Mountains in New Spain, compared with the height of that in Teneriffe.

French Toises.

New Spain. { Height of the Peak of Orizaba,* above the level of the sea. . . 2795
.... of the Cofre de Perote. 2185. 7
.... of the Town of Xalapa. 698
....Encero. 515. 3

* See Geographical Positions, in this page.

Teneriffe. { Height of the Peak in the Azores according to J. J. De F. . . 1238
.... { according to Don Vizente Tofino. } 1260
{ Brigadier of the Spanish Marine. }
Mean height 1249 Toises.

JOSE JOAQUIN DE FERRER.